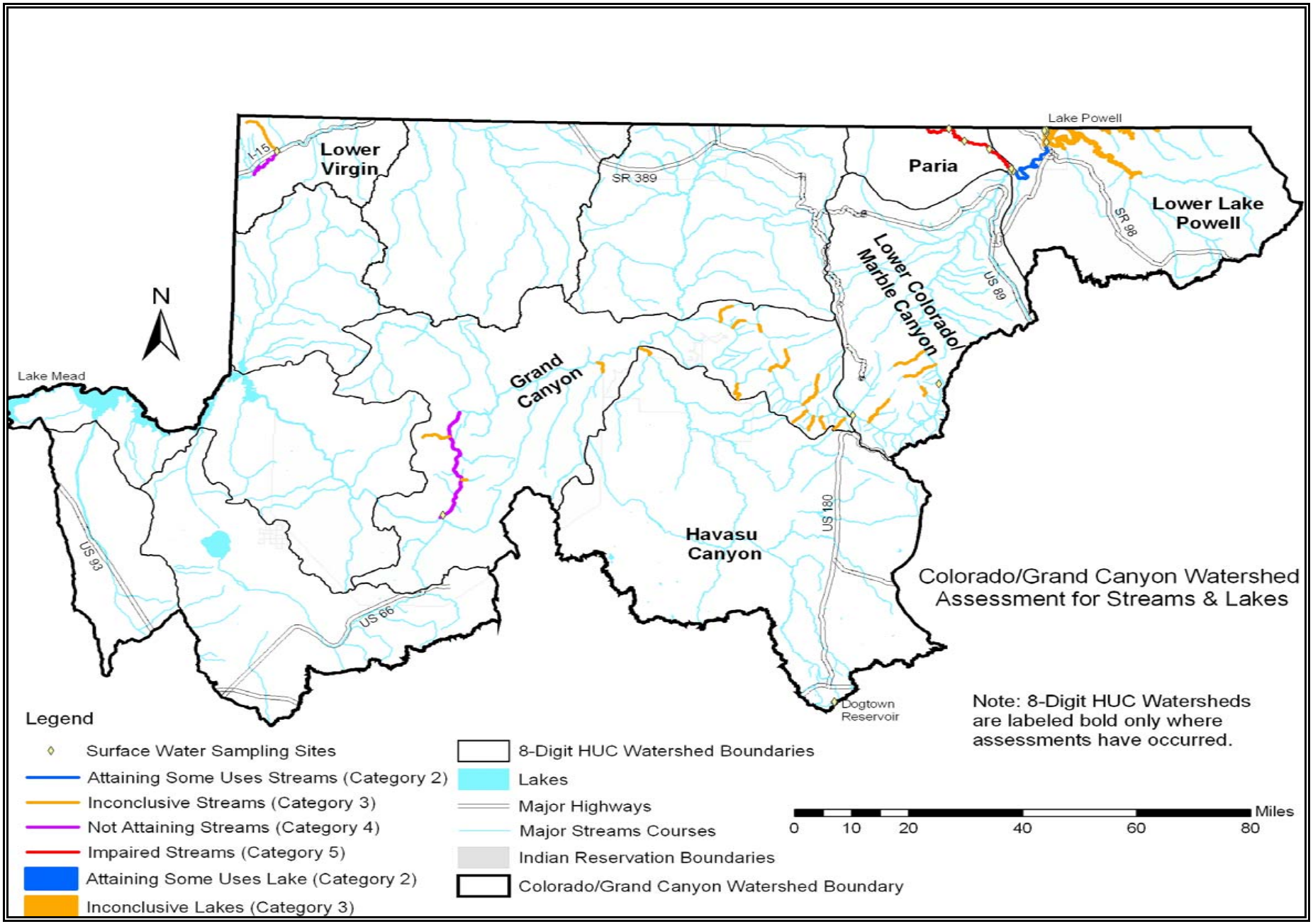


**Figure 16. Colorado - Grand Canyon Watershed 2004 Monitoring and Assessment Map**

## TABLE 7. COLORADO - GRAND CANYON WATERSHED – 2004 ASSESSMENT MONITORING DATA

| STREAM NAME<br>SEGMENT<br>WATERBODY ID<br>DESIGNATED USES | AGENCY AND PROGRAM<br>SITE DESCRIPTION<br>SITE CODE<br>ADEQ DATABASE ID | YEAR SAMPLED<br>NUMBER AND<br>TYPE OF SAMPLES | EXCEEDANCE OF STANDARDS BY SITE | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | PARAMETER<br>UNITS | STANDARD<br>DESIGNATED USE | RANGE OF<br>RESULTS | FREQUENCY<br>EXCEEDED | USE<br>SUPPORT | COMMENTS |
| **STREAM MONITORING DATA** | | | | | | | | |
| Colorado River<br>Lake Powell - Paria River<br>AZ14070006-001<br>A&Wc, FC, FBC, DWS, AgI, AgL | USGS Fixed Station<br>#09380000<br>At Lee's Ferry<br>CMCLR327.39<br>100743 | 1998 - 6 partial suites<br>1999 - 6 partial suites<br>2000 - 6 partial suites<br>2001 - 4 partial suites<br>2002 - 4 partial suites | Dissolved oxygen<br>mg/L | > 7.0<br>(90% saturation)<br>(A&Wc) | 6.5 - 10.1<br>(99 - 63%) | 1 of 25 | | |
| | **Reach Summary Row**<br>**A&Wc Attaining**<br>**FC Attaining**<br>**FBC Attaining**<br>**DWS Inconclusive**<br>**AgI Inconclusive**<br>**AgL Attaining** | **1996-2000**<br><br>**26 sampling events** | **Dissolved oxygen<br>mg/L** | **> 7.0<br>(90% saturation)<br>(A&Wc)** | **6.5 - 10.1<br>(99 - 63%)** | **1 of 25** | **Attaining** | **USGS collected 26 samples 1998-2002. Assessed as "attaining some uses" and placed on the Planning List due to missing core parameters: total fluoride and total boron.** |
| Colorado River<br>Parashant Canyon - Diamond Creek<br>AZ15010002-003<br>A&Wc, FC, FBC, DWS, AgI, AgL | USGS Fixed Station<br># 09404200<br>Above Diamond Creek<br>CMCLR233.40<br>101483 | 1998 - 12 partial suites<br>1999 - 12 partial suites<br>2000 - 9 partial suites<br>2001 - 8 partial suites<br>2002 - 8 partial suites | Selenium (total)<br>µg/L | 2.0<br>(A&Wc chronic) | 1 - 3.8 | 9 of 43 | | All 9 selenium exceedances occurred in 2000-2002. |
| | | | Suspended sediment concentration (SSC)<br>mg/L | 80<br>(geometric mean)<br>(A&Wc) | 12 - 1500 | see comment below | | |
| | | | Turbidity<br>NTU | 10<br>(A&Wc) | 0.4 - >1000 | 14 of 30 | | |
| | **Summary Row**<br><br>**A&Wc Not attaining**<br>**FC Inconclusive**<br>**FBC Inconclusive**<br>**DWS Inconclusive**<br>**AgI Inconclusive**<br>**AgL Inconclusive** | **1998-2002**<br><br>**49 sampling events** | **Selenium (total)<br>µg/L** | **2.0<br>(A&Wc chronic)** | **1 - 3.8** | **9 of 43 events<br>(21% exceed)** | **Inconclusive** | **US Geological Survey collected 49 samples in 1998-2002.**<br><br>**Reach was on the 2002 303(d) List for turbidity. Assessed as "not attaining" and added to the Planning List until sufficient suspended sediment concentration (SSC) or turbidity data are collected to make an assessment of "attaining" or "impaired."**<br><br>**Added to the Planning List due to:<br>1. Potential exceedances of the SSC geometric mean standard.<br>2. Selenium exceedances and<br>3. Missing core parameters: total boron, *Escherichia coli* and total metals (mercury, arsenic, manganese, copper, and lead).** |
| | | | **Suspended sediment concentration (SSC)<br>mg/L** | **80<br>(geometric mean)<br>(A&Wc)** | **12 - 1500** | **see comment at right** | **Inconclusive** | |
| | | | **Turbidity<br>NTU** | **10<br>(A&Wc)** | **0.4 - >1000** | **14 of 30** | **Not attaining (see comment)** | |

## TABLE 7. COLORADO - GRAND CANYON WATERSHED – 2004 ASSESSMENT MONITORING DATA

| STREAM NAME<br>SEGMENT<br>WATERBODY ID<br>DESIGNATED USES | AGENCY AND PROGRAM<br>SITE DESCRIPTION<br>SITE CODE<br>ADEQ DATABASE ID | YEAR SAMPLED<br>NUMBER AND<br>TYPE OF SAMPLES | EXCEEDANCE OF STANDARDS BY SITE | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | PARAMETER<br>UNITS | STANDARD<br>DESIGNATED USE | RANGE OF<br>RESULTS | FREQUENCY<br>EXCEEDED | USE<br>SUPPORT | COMMENTS |
| Paria River<br>Utah border - Colorado River<br>AZ14070007-123<br>A&Ww, FC, FBC | ADEQ TMDL Program<br>Site 4<br>At mile marker 7.5<br>CMPAR022.37<br>101076 | 1998 - 1 field suite<br>1999 - 5 partial suites<br>2000 - 5 partial suites<br>2001 - 1 partial suite | Arsenic (dissolved)<br>µg/L | 360<br>(A&Ww acute- total) | 2 - 457.7 | 1 of 11 | | Dissolved arsenic compared to total arsenic standards. |
| | | | | 190<br>(A&Ww chronic - total) | | 1 of 11 | | |
| | | | | 50<br>(FBC - total) | | 1 of 11 | | |
| | | | Dissolved oxygen<br>mg/L | > 6.0<br>(90% saturation)<br>(A&Ww) | 4.8 - 10.6 | 3 of 11 | | Low dissolved oxygen due to naturally occurring ground water upwelling, and not anthropogenic causes. Not included in the final assessment. |
| | | | Lead (dissolved)<br>µg/L | varies by hardness<br>(A&Ww acute) | 2 - 90.7 | 1 of 11 | | Dissolved lead data compared to total lead standards. |
| | | | | varies by hardness<br>(A&Ww chronic) | | 1 of 10 | | |
| | | | | 15<br>(FBC - total) | | 1 of 11 | | |
| | | | Selenium<br>(dissolved)<br>µg/L | 20<br>(A&Ww acute - total) | <5 - 279.4 | 5 of 11 | | Dissolved selenium data compared to total selenium standards.<br><br>Lab reporting limits on 4 other selenium samples were too high to use results for assessment. |
| | | | | 2.0<br>(A&Ww chronic - total) | <5 - 279.4 | 6 of 7 | | |
| | | | Turbidity<br>NTU | 50<br>(A&Ww) | 4 - 492 | 8 of 11 | | |
| | ADEQ TMDL Program<br>Site 5 at mile marker 15<br>CMPAR013.79<br>101075 | 1998 - 1 partial suite<br>1999 - 5 partial suites<br>2000 - 5 partial suites<br>2001 - 1 field | Dissolved oxygen<br>mg/L | > 6.0<br>(90% saturation)<br>(A&Ww) | 4 - 10.7 | 3 of 11 | | Investigation shows that low dissolved oxygen is solely due to natural conditions. |
| | | | Lead (dissolved)<br>µg/L | varies by hardness<br>(A&Ww chronic) | 2 - 11.4 | 2 of 11 | | |
| | | | Selenium<br>(dissolved)<br>µg/L | 20<br>(A&Ww acute - total) | <5 - 56.3 | 5 of 11 | | |
| | | | | 2.0<br>(A&Ww chronic - total) | <5 - 56.3 | 6 of 6 | | Lab reporting limits for 3 other selenium samples were too high to use results for assessment. |
| | | | Turbidity<br>NTU | 50<br>(A&Ww) | 0 - 441 | 8 of 11 | | |

## TABLE 7. COLORADO - GRAND CANYON WATERSHED – 2004 ASSESSMENT MONITORING DATA

| STREAM NAME<br>SEGMENT<br>WATERBODY ID<br>DESIGNATED USES | AGENCY AND PROGRAM<br>SITE DESCRIPTION<br>SITE CODE<br>ADEQ DATABASE ID | YEAR SAMPLED<br>NUMBER AND<br>TYPE OF SAMPLES | EXCEEDANCE OF STANDARDS BY SITE | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | PARAMETER<br>UNITS | STANDARD<br>DESIGNATED USE | RANGE OF<br>RESULTS | FREQUENCY<br>EXCEEDED | USE<br>SUPPORT | COMMENTS |
| | ADEQ TMDL Program<br>Site 6 at mile marker 22.5<br>CMPAR007.95<br>101074 | 1998 - 1 full suite<br>1999 - 5 full suites<br>2000 - 4 full suites<br>2001 - 1 partial suite | Dissolved oxygen<br>mg/L | > 6.0<br>(90% saturation)<br>(A&Ww) | 4.3 - 9.1 | 3 of 11 | | Low dissolved oxygen is due to naturally occurring ground water upwelling, and not anthropogenic causes. Not included in the final assessment. |
| | | | Lead (dissolved)<br>µg/L | varies by hardness<br>(A&Ww chronic) | 2 - 5.8 | 1 of 10 | | |
| | | | Selenium<br>(dissolved)<br>µg/L | 20<br>(A&Ww acute - total) | <5 - 25 | 3 of 11 | | Dissolved selenium data compared to total selenium standards.<br><br>Laboratory reporting limits for 6 other selenium samples were too high to use results for assessment. |
| | | | | 2.0<br>(A&Ww chronic - total) | <5 - 25 | 5 of 5 | | |
| | | | Turbidity<br>NTU | 50<br>(A&Ww) | 6.2 - 441 | 8 of 10 | | |
| | ADEQ and Northern AZ Univ.<br>TMDL Program<br>Site 7 at Lees Ferry<br>CMPAR000.55<br>101073 | 1998 - 1 full suite<br>1999 - 5 full suites<br>2000 - 5 full suites<br>2001 - 1 full suite | Dissolved oxygen<br>mg/L | > 6.0<br>(90% saturation)<br>(A&Ww) | 4.3 - 8.2 | 4 of 11 | | Low dissolved oxygen is due to naturally occurring ground water upwelling, and not anthropogenic causes. Not included in the final assessment. |
| | | | Selenium<br>(dissolved)<br>µg/L | 20<br>(A&Ww acute - total) | <5 - 26.2 | 1 of 12 | | Dissolved selenium data compared to total selenium standards.<br><br>Lab reporting limits for 6 other selenium samples were too high to use results for assessment. |
| | | | | 2.0<br>(A&Ww chronic - total) | <5 - 26.2 | 6 of 6 | | |
| | | | Turbidity<br>NTU | 50<br>(A&Ww) | 7 - 441 | 8 of 11 | | |
| | USGS<br>Special Investigation<br>At Lees Ferry<br>CMPAR001.03<br>101447 | 1998 - 66 SSC<br>1999 - 58 SSC<br>2000 - 50 SSC | Suspended<br>sediment<br>concentration<br>(SSC)<br>mg/L | 80<br>(A&Ww<br>(geometric mean) | 11 -<br>1,200,000 | see comment<br>below | | |

## TABLE 7. COLORADO - GRAND CANYON WATERSHED – 2004 ASSESSMENT MONITORING DATA

| STREAM NAME<br>SEGMENT<br>WATERBODY ID<br>DESIGNATED USES | AGENCY AND PROGRAM<br>SITE DESCRIPTION<br>SITE CODE<br>ADEQ DATABASE ID | YEAR SAMPLED<br>NUMBER AND<br>TYPE OF SAMPLES | EXCEEDANCE OF STANDARDS BY SITE | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | PARAMETER<br>UNITS | STANDARD<br>DESIGNATED USE | RANGE OF<br>RESULTS | FREQUENCY<br>EXCEEDED | USE<br>SUPPORT | COMMENTS |
| | Summary Row<br><br>A&Ww Impaired<br>FC Attaining<br>FBC Inconclusive | 1998 - 2001<br><br>222 samples<br>186 sampling events | Arsenic (dissolved) µg/L | 360 (A&Ww - total) | <2 - 457.7 | 1 of 12 | Attaining | ADEQ's TMDL Program collected 48 samples at 4 sites in 1998 - 2001. USGS collected 174 suspended sediment concentration samples in 1998-2000. Assessed as "impaired" due to selenium exceedances.<br><br>Turbidity exceedances also indicate impairment based on the former turbidity standard. Reach is also placed in the 4D category based on turbidity exceedances.<br><br>Reach is also on the Planning List due to:<br>1. Lead exceedances,<br>2. Missing core parameters, and,<br>3. Potential exceedances of the SSC geometric mean standard.<br><br>Despite issues applying the SSC standard (see discussion in Chapter III), EPA is developing methods to determine base flow which may result in this reach being added to the 2004 303(d) List by EPA.<br><br>Preliminary studies indicate that turbidity and SSC exceedances are a natural condition caused by erosion of sandstone cliffs. |
| | | | | 190 (A&Ww chronic - total) | | 1 of 12 (8% exceed) | Attaining | |
| | | | | 50 (FBC - total) | | 1 of 48 | Attaining | |
| | | | Lead (dissolved) µg/L | varies by hardness (A&Ww acute) | 2 - 90.7 | 1 of 48 (in 1999, only 2 years data since) | Inconclusive | |
| | | | | varies by hardness (A&Ww chronic) | 2 - 90.7 | 4 of 48 samples 2 of 12 events (17% exceed) | Inconclusive | |
| | | | | 15 (FBC - total) | 2 - 90.7 | 1 of 48 | Attaining | |
| | | | Selenium (dissolved) µg/L | 20 (A&Ww acute - total) | <5 - 279.4 | 14 of 48 samples 6 of 12 events (1999 and 2000) | Impaired | |
| | | | | 2 (A&Ww chronic - total) | <5 - 279.4 | 6 of 12 events (50% exceed) | Impaired | |
| | | | Suspended sediment concentration (SSC) mg/L | 80 (A&Ww) (geometric mean) | 11 - 1,200,000 | see comment at right | Inconclusive | |
| | | | Turbidity NTU | 50 (A&Ww) | 0 - 492 | 32 of 43 | Not attaining (see comment) | |

## TABLE 7. COLORADO - GRAND CANYON WATERSHED – 2004 ASSESSMENT MONITORING DATA

| STREAM NAME<br>SEGMENT<br>WATERBODY ID<br>DESIGNATED USES | AGENCY AND PROGRAM<br>SITE DESCRIPTION<br>SITE CODE<br>ADEQ DATABASE ID | YEAR SAMPLED<br>NUMBER AND<br>TYPE OF SAMPLES | EXCEEDANCE OF STANDARDS BY SITE | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | PARAMETER<br>UNITS | STANDARD<br>DESIGNATED USE | RANGE OF<br>RESULTS | FREQUENCY<br>EXCEEDED | USE<br>SUPPORT | COMMENTS |
| Virgin River<br>Beaver Dam Wash - Big Bend Wash<br>AZ15010010-003<br>A&Ww, FC, FBC, AgI, AgL | USGS Fixed Station<br># 9415000<br>At Littlefield, Az<br>CMVGR010.18 | 1998 - 6 partial suites<br>1999 - 6 partial suites<br>2000 - 6 partial suites<br>2001 - 6 partial suites<br>2002 - 4 partial suites | *Escherichia coli*<br>CFU/100 ml | 235<br>(FBC) | 12 - 3000 | 1 of 16 | | |
| | | | Selenium (total)<br>µg/L | 2<br>(A&Ww chronic) | <1 - 2.2 | 3 of 27 | | |
| | | | Suspended sediment concentration (SSC) mg/L | 80<br>(A&Ww)<br>(geometric mean) | 23 - 18,300 | see comment below | | |
| | | | Turbidity<br>NTU | 50<br>(A&Ww) | 0.3 - 360 | 12 of 24 | | |
| | **Summary Row**<br><br>**A&Ww Not attaining**<br>**FC Inconclusive**<br>**FBC Attaining**<br>**AgI Inconclusive**<br>**AgL Inconclusive** | **1998-2002**<br><br>**28 sampling events** | ***Escherichia coli***<br>**CFU/100 ml** | **235**<br>**(FBC)** | **12 - 3000** | **1 of 16**<br>**(in 1999, 3 years with no exceedances after)** | **Attaining** | **USGS collected 28 samples in 1998-2002. Reach was on the 2002 303(d) List due to turbidity.**<br><br>**Current turbidity exceedances indicate impairment based on the former turbidity standard. Assessed as "not attaining" and placed on the Planning List until sufficient suspended sediment concentration (SSC) or turbidity data are collected to make an assessment of "attaining" or "impaired."**<br><br>**Reach has potential exceedances of the SSC geometric mean standard.**<br><br>**Also on the Planning List due to selenium exceedances and missing core parameters: total boron, dissolved metals (cadmium, copper, and zinc), and total metals (mercury, copper, manganese, and lead).** |
| | | | **Selenium (total)**<br>**µg/L** | **2.0**<br>**(A&Ww chronic)** | **<1 - 2.2** | **3 of 27 events**<br>**(11% exceed)** | **Inconclusive** | |
| | | | **Suspended sediment concentration (SSC) mg/L** | **80**<br>**(A&Ww)**<br>**(geometric mean)** | **23 - 18,300** | **see comment at right** | **Inconclusive** | |
| | | | **Turbidity**<br>**NTU** | **50**<br>**(A&Ww)** | **1 - 360** | **12 of 24** | **Not attaining (see comment)** | |

## TABLE 7. COLORADO - GRAND CANYON WATERSHED – 2004 ASSESSMENT MONITORING DATA

| STREAM NAME<br>SEGMENT<br>WATERBODY ID<br>DESIGNATED USES | AGENCY AND PROGRAM<br>SITE DESCRIPTION<br>SITE CODE<br>ADEQ DATABASE ID | YEAR SAMPLED<br>NUMBER AND<br>TYPE OF SAMPLES | EXCEEDANCE OF STANDARDS BY SITE | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | PARAMETER<br>UNITS | STANDARD<br>DESIGNATED USE | RANGE OF<br>RESULTS | FREQUENCY<br>EXCEEDED | USE<br>SUPPORT | COMMENTS |
| **LAKES MONITORING DATA** | | | | | | | | |
| Dogtown Reservoir<br>AZL15010004-0480<br>A&Wc, FC, FBC, DWS, AgI, AgL | ADEQ and Northern AZ Univ.<br>Lakes Program<br>CMDOG - A (deepest)<br>100019 | 1999 - 1 field<br>2001 - 3 partial suites<br>2002 - 1 full suite | Dissolved oxygen<br>mg/L | > 7.0<br>(90% saturation)<br>(A&Wc) | 6.6 - 8.9<br>(72 - 140%) | 1 of 5 | | |
| | | | pH<br>SU | 6.5 - 9.0<br>(A&Wc, FBC, DWS, AgI, AgL) | 7.2 - 9.6 | 2 of 5 | | |
| | | | Selenium (total)<br>µg/L | 2.0<br>(A&Wc chronic) | < 2 - 3 | 1 of 4 | | |
| | | | Turbidity<br>NTU | 10<br>(A&Wc) | 8 - 75 | 3 of 4 | | Naturally occurring erosion of sandstone formations may be the cause of turbidity. |
| | ADEQ and Northern AZ Univ.<br>Lakes Program<br>CMDOG - BR (boat ramp)<br>101319 | 2002 - 1 *Escherichia coli* | OK | | | | | |
| | **Summary Row**<br><br>**A&Wc Inconclusive**<br>**FC Attaining**<br>**FBC Inconclusive**<br>**DWS Inconclusive**<br>**AgI Inconclusive**<br>**AgL Inconclusive** | **1999-2002**<br><br>**6 samples**<br>**5 sampling events** | **Dissolved oxygen<br>mg/L** | **> 7.0<br>(90% saturation)<br>(A&Wc)** | **6.6 - 8.9<br>(72 - 140%)** | **1 of 5** | **Inconclusive** | **ADEQ and Northern Arizona University collected 6 samples in 1999 - 2002. Assessed as "attaining some uses" and placed on the Planning List due to low dissolved oxygen, high pH, and exceedances of selenium standard and the former turbidity standard. Investigation into the causes and sources of turbidity will be scheduled during the next monitoring cycle for this watershed.**<br><br>**Also placed on the Planning List due to missing core parameters: *Escherichia coli* and dissolved metals (cadmium, copper, and zinc).** |
| | | | **pH<br>SU** | **6.5 - 9.0<br>(A&Wc, FBC, DWS, AgI, AgL)** | **7.2 - 9.6** | **2 of 5** | **Inconclusive** | |
| | | | **Selenium (total)<br>µg/L** | **2.0<br>(A&Ww chronic)** | **< 2 - 3** | **1 of 4 events<br>(insufficient events)** | **Inconclusive** | |
| | | | **Turbidity<br>NTU** | **10<br>(A&Wc)** | **8 - 75** | **3 of 4** | **Inconclusive<br>(see comment)** | |

## TABLE 7. COLORADO - GRAND CANYON WATERSHED – 2004 ASSESSMENT MONITORING DATA

| STREAM NAME<br>SEGMENT<br>WATERBODY ID<br>DESIGNATED USES | AGENCY AND PROGRAM<br>SITE DESCRIPTION<br>SITE CODE<br>ADEQ DATABASE ID | YEAR SAMPLED<br>NUMBER AND<br>TYPE OF SAMPLES | EXCEEDANCE OF STANDARDS BY SITE | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | PARAMETER<br>UNITS | STANDARD<br>DESIGNATED USE | RANGE OF<br>RESULTS | FREQUENCY<br>EXCEEDED | USE<br>SUPPORT | COMMENTS |
| Lake Powell<br>AZL14070006-1130<br>A&Wc, FC, FBC, DWS, AgI, AgL | Glen Canyon Natl Recreation Area and Bureau of Reclamation<br>Ambient Monitoring<br>Gov't Housing Beach<br>CMPOW - NPS1 | 1998 - 10 *E. coli* + turbidity<br>1999 - 11 *E. coli* + turbidity<br>2000 - 16 *E. coli* + turbidity<br>2001 - 4 *E. coli* + turbidity<br>2002 - 10 *E. coli* + turbidity | *Escherichia coli*<br>CFU/100 ml | 235<br>(FBC) | 0 - 548 | 1 of 51 | | |
| | Glen Canyon Natl Recreation Area and Bureau of Reclamation<br>Ambient Monitoring<br>Stateline Marina<br>CMPOW - State 1 | 1999 - 6 *E. coli* + turbidity<br>2000 - 16 *E. coli* + turbidity<br>2002 - 8 *E. coli* + turbidity | OK | | | | | |
| | Glen Canyon Natl Recreation Area and Bureau of Reclamation<br>Ambient Monitoring<br>Wahweap Bay Marina<br>CMPOW - WWM1 | 1998 - 10 *E. coli* + turbidity<br>1999 - 13 *E. coli* + turbidity<br>2000 - 18 *E. coli* + turbidity<br>2001 - 8 *E. coli* + turbidity<br>2002 - 8 *E. coli* + turbidity | *Escherichia coli*<br>CFU/100 ml | 235<br>(FBC) | 0 - 457 | 1 of 57 | | |
| | Glen Canyon Natl Recreation Area and Bureau of Reclamation<br>Ambient Monitoring<br>Picnic Beach<br>CMPOW - WWPB | 1998 - 10 *E. coli* + turbidity<br>1999 - 6 *E. coli* + turbidity<br>2000 - 8 *E. coli* + turbidity<br>2002 - 8 *E. coli* + turbidity | OK | | | | | |
| | **Summary Row**<br><br>**A&Wc Inconclusive**<br>**FC Inconclusive**<br>**FBC Inconclusive**<br>**DWS Inconclusive**<br>**AgI Inconclusive**<br>**AgL Inconclusive** | **1996 - 1997**<br><br>**170 samples**<br>**60 sampling events** | ***Escherichia coli***<br>**CFU/100 ml** | **235**<br>**(FBC)** | **0 - 548** | **2 of 170**<br>**(only 1 exceedance in the last 3 years)** | **Inconclusive** | **Bureau of Reclamation and Glen Canyon Natural Recreation Area collected 170 samples at 4 sites in the Arizona portion of Lake Powell.**<br><br>**Assessed as "inconclusive" due to 1 exceedance of the *Escherichia coli* standard within the last 3 years of monitoring and missing core parameters. Kept on the Planning List for further monitoring. (Note, no beach closures in Arizona during the past 5 years.)**<br><br>**Missing core parameters: dissolved oxygen, turbidity, field pH, total boron, total fluoride, dissolved metals (copper, cadmium, and zinc), and total metals (mercury, arsenic, chromium, lead, manganese, copper, and lead).** |

| TABLE 8. COLORADO-GRAND CANYON WATERSHED ASSESSMENTS, PLANNING LIST, AND 303(d) STATUS TABLE | | | | |
|---|---|---|---|---|
| **SURFACE WATER DESCRIPTION** | **2004 ASSESSMENT 5-CATEGORIES LAKE TROPHIC STATUS** | **2004 PLANNING LIST** | **STATUS OF 2002 303(d) LIST RECOMMENDATIONS FOR 2004 LIST** | **OTHER INFORMATION** |
| **COLORADO-GRAND CANYON WATERSHED – STREAM ASSESSMENTS** | | | | |
| Beaver Dam Wash<br>Utah border - Virgin River<br>10 miles<br>AZ15010010-009 | A&Ww Inconclusive<br>FC Inconclusive<br>FBC Inconclusive<br>AgL Inconclusive<br>Category 3 -- Inconclusive (not assessed) | On the Planning List. Added in 2002 due to insufficient sampling events (no current data). | | |
| Boucher Creek<br>California Wash - Colorado River<br>4 miles<br>AZ15010002-017 | A&Ww Inconclusive<br>FC Inconclusive<br>FBC Inconclusive<br>Category 3 -- Inconclusive (not assessed) | On the Planning List. Added in 2002 due to insufficient monitoring (no current data). | | |
| Chuar Creek<br>wash at 36E11'36"/111E52'17" - Lava Creek<br>3 miles<br>AZ15010001-024B<br>(Reach was split into warmwater and coldwater segments since the last assessment. No current data in 024A. Previous data were collected in 024B.) | A&Ww Inconclusive<br>FC Inconclusive<br>FBC Inconclusive<br>Category 3 -- Inconclusive (not assessed) | On the Planning List. Added in 2002 due to insufficient monitoring (no current data). | | |
| Clear Creek<br>wash at 36E09'12"/111E58'25" - Colorado River<br>8 miles<br>AZ15010001-025B<br>(Reach was split into warmwater and coldwater segments since the last assessment. No current data in 025A. Previous data were collected in 025B.) | A&Ww Inconclusive<br>FC Inconclusive<br>FBC Inconclusive<br>Category 3 -- Inconclusive (not assessed) | On the Planning List. Added in 2002 due to insufficient monitoring (no current data). | | |
| Colorado River<br>Lake Powell - Paria River<br>16 miles<br>AZ14070006-001 | A&Wc Attaining<br>FC Attaining<br>FBC Attaining<br>DWS Inconclusive<br>AgI Inconclusive<br>AgL Attaining<br>Category 2 -- Attaining Some Uses | On the Planning List due to missing core parameters: total fluoride and total boron.<br><br>Remove selenium from the Planning List. No exceedances of the chronic standard in 19 samples. | | |
| Colorado River<br>Parashant Canyon - Diamond Creek<br>28 miles<br>AZ15010002-003 | A&Wc Not attaining<br>FC Inconclusive<br>FBC Inconclusive<br>DWS Inconclusive<br>AgI Inconclusive<br>AgL Inconclusive<br>Category 4D -- Not attaining | On the Planning List due to:<br>1. Chronic selenium exceedances in 9 of 43 sampling events (21% exceed).<br>2. Former turbidity standard exceedances (14 of 30 samples) and potential exceedances of the suspended sediment concentration geometric mean standard. Turbidity and suspended sediment concentration (SSC) monitoring will be scheduled during the next monitoring cycle for this watershed.<br>4. Missing core parameters: *Escherichia coli*, total boron, and total metals (mercury, arsenic, manganese, copper, and lead). | Delist turbidity. The standard was repealed in 2002. Assessed turbidity as "not attaining" and placed in category 4D. Turbidity exceedances (14 of 30 samples) indicate impairment based on the former standard. Reach will remain "not attaining" until sufficient turbidity or suspended sediment concentration (new sediment standard) data are collected to make an assessment of "attaining" or "impaired." Add turbidity/SSC to the Planning List. | Despite issues applying the SSC standard (see discussion in Chapter III), EPA is developing methods to determine base flow which may result in this reach being added by EPA to the 2004 303(d) List due to suspended sediment concentration.<br><br>EPA may also use exceedances of the former turbidity standard as an indicator of narrative standards violations and place this reach on the 2004 303(d) List due to turbidity. |

| TABLE 8. COLORADO-GRAND CANYON WATERSHED ASSESSMENTS, PLANNING LIST, AND 303(d) STATUS TABLE | | | | |
|---|---|---|---|---|
| **SURFACE WATER DESCRIPTION** | **2004 ASSESSMENT 5-CATEGORIES LAKE TROPHIC STATUS** | **2004 PLANNING LIST** | **STATUS OF 2002 303(d) LIST RECOMMENDATIONS FOR 2004 LIST** | **OTHER INFORMATION** |
| Crystal Creek<br>wash at 36E13'42"/112E11'48" - Colorado River<br>9 miles<br>AZ15010002-018B<br>(Reach was split into warmwater and coldwater segments since the last assessment. No current data in 018A. Previous data were collected in 018B.) | A&Ww Inconclusive<br>FC Inconclusive<br>FBC Inconclusive<br>Category 3 -- Inconclusive (not assessed) | On the Planning List. Added in 2002 due to insufficient monitoring (no current data). | | |
| Deer Creek<br>wash at 36E26'16"/112E28'15.5" - Colorado River<br>5 miles<br>AZ15010002-019B<br>(Reach was split into warmwater and coldwater segments since the last assessment. No current data in 019A. Previous data were collected in 019B.) | A&Ww Inconclusive<br>FC Inconclusive<br>FBC Inconclusive<br>Category 3 -- Inconclusive (not assessed) | On the Planning List. Added in 2002 due to insufficient monitoring (no current data). | | |
| Garden Creek<br>headwaters - Pipe Creek<br>3 miles<br>AZ15010002-841 | A&Ww Inconclusive<br>FC Inconclusive<br>FBC Inconclusive<br>Category 3 -- Inconclusive (not assessed) | On the Planning List. Added in 2002 due to insufficient monitoring (no current data). | | |
| Havasu Canyon Creek<br>Havasupai Indian Reservation - Colorado River<br>3 miles<br>AZ15010004-001<br>(previously listed as Havasu Creek) | A&Ww Inconclusive<br>FC Inconclusive<br>FBC Inconclusive<br>Category 3 -- Inconclusive (not assessed) | On the Planning List. Added in 2002 due to:<br>1. Insufficient monitoring (no current data).<br>2. Former turbidity standard exceedances. Turbidity and suspended sediment concentration (SSC) monitoring will be scheduled during the next monitoring cycle for this watershed. | | |
| Hermit Creek<br>Hermit Pack Trail Crossing - Colorado River<br>4 miles<br>AZ15010002-020B<br>(Reach was split into warmwater and coldwater segments since the last assessment. No current data in 020A. Previous data were collected in 020B.) | A&Ww Inconclusive<br>FC Inconclusive<br>FBC Inconclusive<br>Category 3 -- Inconclusive (not assessed) | On the Planning List. Added in 2002 due to insufficient monitoring (no current data). | | |
| Kwagunt Creek<br>tributary at 36E13'29"/111E55'24" - Colorado River<br>7 miles<br>AZ15010001-031B<br>(Reach was split into warmwater and coldwater segments since the last assessment. No current data in 031A. Previous data were collected in 031B.) | A&Ww Inconclusive<br>FC Inconclusive<br>FBC Inconclusive<br>Category 3 -- Inconclusive (not assessed) | On the Planning List. Added in 2002 due to insufficient monitoring (no current data). | | |
| Monument Creek<br>headwaters - Colorado River<br>4 miles<br>AZ15010002-845 | A&Ww Inconclusive<br>FC Inconclusive<br>FBC Inconclusive<br>Category 3 -- Inconclusive (not assessed) | On the Planning List. Added in 2002 due to insufficient monitoring (no current data). | | |

## TABLE 8. COLORADO-GRAND CANYON WATERSHED ASSESSMENTS, PLANNING LIST, AND 303(d) STATUS TABLE

| SURFACE WATER DESCRIPTION | 2004 ASSESSMENT 5-CATEGORIES LAKE TROPHIC STATUS | 2004 PLANNING LIST | STATUS OF 2002 303(d) LIST RECOMMENDATIONS FOR 2004 LIST | OTHER INFORMATION |
|---|---|---|---|---|
| Nankoweap Creek<br>tributary at 36E15'30"/111E57'23" - Colorado River<br>7 miles<br>AZ15010001-033B<br>(Reach was split into warmwater and coldwater segments since the last assessment. No current data in 033A. Previous data were collected in 033B.) | A&Ww Inconclusive<br>FC Inconclusive<br>FBC Inconclusive<br>Category 3 -- Inconclusive (not assessed) | On the Planning List. Added in 2002 due to insufficient monitoring (no current data). | | |
| National Canyon Creek<br>headwaters - Colorado River<br>3 miles<br>AZ15010002-016 | A&Ww Inconclusive<br>FC Inconclusive<br>FBC Inconclusive<br>Category 3 -- Inconclusive (not assessed) | On the Planning List. Added in 2002 due to insufficient monitoring (no current data). | | |
| Paria River<br>Utah border - Colorado River<br>29 miles<br>AZ14070007-123 | A&Ww Impaired<br>FC Attaining<br>FBC Inconclusive<br>Category 5 – Impaired | On the Planning List due to:<br>1. Chronic and acute lead exceedance (1 of 45 samples, occurred in 1999).<br>2. Former turbidity standard exceedances (32 of 43 samples) and potential exceedances of the suspended sediment concentration geometric mean standard.<br>Turbidity and SSC monitoring will be scheduled during the next monitoring cycle for this watershed. | Add selenium to the 303(d) List due to chronic and acute selenium exceedances (6 of 12 sampling events). | Despite issues applying the SSC standard (see discussion in Chapter III), EPA is developing methods to determine base flow which may result in this reach being added by EPA to the 2004 303(d) List due to suspended sediment concentration.<br><br>EPA may also use exceedances of the former turbidity standard as an indicator of narrative standards violations and place this reach on the 2004 303(d) List due to turbidity. |
| Royal Arch Creek<br>headwaters - Colorado River<br>5 miles<br>AZ15010002-871 | A&Ww Inconclusive<br>FC Inconclusive<br>FBC Inconclusive<br>Category 3 -- Inconclusive (not assessed) | On the Planning List. Added in 2002 due to insufficient monitoring (no current data). | | |
| Saddle Canyon Creek<br>tributary at 36E21'35.5"/112E22'46" - Colorado River<br>5 miles<br>AZ15010002-703B<br>(Reach split into warmwater and coldwater segments since the last assessment. No current data in 703A.) | A&Ww Inconclusive<br>FC Inconclusive<br>FBC Inconclusive<br>Category 3 -- Inconclusive (not assessed) | On the Planning List. Added in 2002 due to insufficient monitoring (no current data). | | |
| Shinumo Creek<br>tributary at 36E18'21"/112E18'03" - Colorado River<br>9 miles<br>AZ15010002-029B<br>(Reach split into warmwater and coldwater segments since the last assessment. No current data in 029A. Previous data were collected in 029B.) | A&Ww Inconclusive<br>FC Inconclusive<br>FBC Inconclusive<br>Category 3 -- Inconclusive (not assessed) | On the Planning List. Added in 2002 due to insufficient monitoring (no current data). | | |
| Spring Canyon Creek<br>headwaters - Colorado River<br>6 miles<br>AZ15010002-318 | A&Ww Inconclusive<br>FC Inconclusive<br>FBC Inconclusive<br>Category 3 -- Inconclusive (not assessed) | On the Planning List. Added in 2002 due to insufficient monitoring (no current data). | | |

## TABLE 8. COLORADO-GRAND CANYON WATERSHED ASSESSMENTS, PLANNING LIST, AND 303(d) STATUS TABLE

| SURFACE WATER DESCRIPTION | 2004 ASSESSMENT 5-CATEGORIES LAKE TROPHIC STATUS | 2004 PLANNING LIST | STATUS OF 2002 303(d) LIST RECOMMENDATIONS FOR 2004 LIST | OTHER INFORMATION |
|---|---|---|---|---|
| Tapeats Creek<br>headwaters - Colorado River<br>13 miles<br>AZ15010002-696 | A&Wc Inconclusive<br>FC Inconclusive<br>FBC Inconclusive<br>Category 3 -- Inconclusive (not assessed) | On the Planning List. Added in 2002 due to insufficient monitoring (no current data). | | |
| Three Springs Creek<br>headwaters - Colorado River<br>1 mile<br>AZ15010002-1180 | A&Ww Inconclusive<br>FC Inconclusive<br>FBC Inconclusive<br>Category 3 -- Inconclusive (not assessed) | On the Planning List. Added in 2002 due to insufficient monitoring (no current data). | | |
| Vasey's Paradise (Spring)<br>at Colorado River<br>0.2 miles<br>AZ15010001-SP01 | A&Wc Inconclusive<br>FC Inconclusive<br>FBC Inconclusive<br>Category 3 -- Inconclusive (not assessed) | On the Planning List. Added in 2002 due to insufficient monitoring (no current data). | | |
| Virgin River<br>Beaver Dam Wash - Big Bend Wash<br>10 miles<br>AZ15010010-003 | A&Ww Not attaining<br>FC Inconclusive<br>FBC Attaining<br>AgI Inconclusive<br>AgL Inconclusive<br>Category 4D -- Not attaining | On the Planning List due to:<br>1. Chronic selenium exceedances (3 of 27 sampling events).<br>2. Missing core parameters: total boron, dissolved metals (cadmium, copper, and zinc), and total metals (mercury, manganese, copper, and lead).<br>3. Former turbidity standard exceedances (12 of 24 samples) and potential exceedances of the suspended sediment concentration geometric mean standard. Turbidity and SSC monitoring will be scheduled during the next monitoring cycle for this watershed. | Delist fecal coliform. Standards were repealed in 2002. *Escherichia coli* results are supporting designated uses.<br><br>Delist turbidity. Standard was repealed in 2002. Assessed turbidity as "not attaining" and placed in category 4D. Turbidity exceedances (12 of 24 samples) indicate impairment based on the former standard. Reach will remain "not attaining" until sufficient turbidity or suspended sediment concentration (new sediment standard) data are collected to make an assessment of "attaining" or "impaired." Add turbidity/SSC to the Planning List. | Despite issues applying the SSC standard (see discussion in Chapter III), EPA is developing methods to determine base flow which may result in this reach being added by EPA to the 2004 303(d) List due to suspended sediment concentration.<br><br>EPA may also use exceedances of the former turbidity standard as an indicator of narrative standards violations and place this reach on the 2004 303(d) List due to turbidity. |
| **COLORADO-GRAND CANYON WATERSHED – LAKE ASSESSMENTS** | | | | |
| Dogtown Reservoir<br>70 acres<br>AZL15010004-0480 | A&Wc Inconclusive<br>FC Attaining<br>FBC Inconclusive<br>DWS Inconclusive<br>AgI Inconclusive<br>AgL Inconclusive<br>Category 2 – Attaining Some Uses<br>Trophic Status – Eutrophic | On the Planning List due to:<br>1. Chronic selenium exceedance (1 of 4 sampling events).<br>2. Low dissolved oxygen (1 of 5 samples).<br>3. High pH (2 of 5 samples).<br>4. Missing core parameters: *Escherichia coli* and dissolved metals (copper, cadmium, and zinc).<br>5. Former turbidity standard exceedances (3 of 4 samples). The causes and sources of turbidity will be investigated during the next monitoring cycle for this watershed. | | |
| Lake Powell<br>9,772 acres<br>AZL14070006-1130 | A&Wc Inconclusive<br>FC Inconclusive<br>FBC Inconclusive<br>DWS Inconclusive<br>AgI Inconclusive<br>AgL Inconclusive<br>Category 3 -- Inconclusive<br><br>Trophic status not calculated | On the Planning List due to:<br>1. *Escherichia coli* exceedance (1 exceedance in the last 3 years).<br>2. Missing core parameters (only *Escherichia coli* and turbidity data). | | |